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AUTHOR Almy, Millie
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ABSTRACT

This paper discusses some of the issues involved in utilizing Piagetian theory in educational planning. Piaget has emphasized the need for active learning, peer interaction, consideration of individual needs and abilities, and the development of logical thought, elements which are not emphasized in the traditional classroom. Piaget maintains that teachers are the key to the successful application of his theories in education. Implications for teacher education are discussed. It is suggested that educational changes should be implemented at the local level and that support by supervisors and parents is a necessity. Before changes are implemented, the principal and the teachers need to consider the appropriateness of the change for the particular situation, the concomitant changes in staff roles, questions of decision making policies, and time considerations. Teacher involvement, particularly voluntary involvement, is considered of primary importance. It is suggested that general educational policy beyond the individual classroom level will determine the acceptance and implementation of these ideas. (BD)

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PIAGET AND EDUCATIONAL POLICY

Millie Almy
University of California, Berkeley

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Piaget and Educational Policy

Millie Almy
University of California, Berkeley

This paper had its beginning at a conference on early childhood education held in the late 1950s or early '60s. Most of us at that time thought early childhood education was about to save the world. Some of us thought the rescue would be brought about through the application of Piagetian theory. At this conference I had just finished holding forth on the transition from preoperational to concrete operational thought, and the ways schools might facilitate it, when Jules Henry, the anthropologist, posed a devastating question. "What makes you think," he said, "that our society will tolerate an education that teaches children to think logically?"

In the years that have elapsed, early childhood has, in the view of many, been tried and found wanting. Piaget's theory continues to inspire many individual teachers and some curricula. I fail to find much evidence, however, that schools in general are promoting either the active teaching methods or the collaboration among the pupils that he regards as essential.

If we had grasped sufficiently well the nature of the changes in educational policy required to put Piaget's ideas about education into widespread operation perhaps we would not have expected very sweeping changes. On the other hand, our knowledge of the demise of progressive education, as it shifted from a concern with social reform to a preoccupation with child-centeredness,[1] should have forewarned that educational innovation of this kind must be nurtured outside as well as inside the classroom. Nor is it

likely that Piaget's theory will have greater impact than Dewey's, despite the fact that he "differentiates and documents the concepts that Dewey . . . challenged and and analyzed,"[2] unless it, too, is placed in the context of society as well as the classroom.

Piaget, having been the director of the International Bureau of Education, later a representative to UNESCO and a member of its Executive Council, as well as having travelled widely, has had considerable opportunity to see how societies and their governments shape education for their children. He notes, "Our school system, as much under left-wing as under right wing regimes has been conducted by conservatives (from the pedagogic point-of-view) who were thinking much more in terms of fitting our rising generation into the molds of traditional learning than in terms of training inventive and critical minds."[3] Such a statement provides little direction for those who like to believe that the training of inventive and critical minds should be the province of education. It also raises the question of whether Piaget has ever made explicit his beliefs as to how such training can become a feature of public education. Put another way, what educational policies are needed to support education based on Piaget's theory of knowledge?

This question has led me to reexamine some of Piaget's writing with which I was already somewhat familiar and to delve into some new material. I thought that writing done when he was director of the International Bureau of Education, and that in which he takes a sociological perspective might be helpful. Unfortunately, my search so far has been limited to the materials held in the library of the Jean Piaget Society and I have had insufficient time to do justice to the material that is only available in French. I am impressed, however, that most of what Piaget has to say that is directly relevant to

educational policy is to be found in The Science of Education and the Psychology of the Child.

I have no quarrel with Piaget for not having spelled out the conditions under which his kind of education can take place. I do think it is unfortunate that so many should have attempted to implement a curriculum based to some extent on Piaget's ideas with no assurance that their administrators, the parents of their children, the Board of Education in their district, and the State Department of Education were equally convinced of the validity of Piaget's ideas.

Parenthetically, I find some irony in recent articles that contend that Piaget's theory reflects certain socio-economic biases and a commitment to the status quo.[4]

In the sections that follow, I try to map out some essential elements in an educational program based on Piaget's theory and to raise questions regarding the kind of support teachers must have if the innovations are to be sustained. First of all, Piaget espouses what he terms "active methods" and an environment for learning geared to the interests and needs of the stages of development of the children.[5] Secondly, he believes that the social relationships among children contribute at least as much, perhaps more, to their learning, as does the teacher. Third, he is less concerned with particular subjects than he is with the logico-mathematical structures underlying and interrelating them.[6] In addition he believes the teacher should be a professional with advanced scientific and technical training.[7] Furthermore, for the long term good of education, many decisions regarding teaching methods are to be settled by an experimental pedagogy.[8]

Assuming that a teacher, or even a group of teachers, attempt to put Piaget's ideas into action in their classrooms, at what points may they find their efforts in conflict with traditional policy and in need of support from their administrator and the parents?

Let us begin with "active methods." Piaget recognizes that these methods began with Rousseau, Pestalozzi and Froebel, and were furthered by the work, among others, of Dewey, Montessori and Decroly. He takes the sanguine view that by now it is generally understood that "an active school is not necessarily a school of manual labor" and also that "interest in no way excludes effort."[9] His own studies of children, and those of his collaborators[10] reveal the mental activity that children can invest in active exploration and manipulation. Such studies have enabled others to see new significance in children's activities in the classroom, making, in Piaget's terms, distinctions between knowledge that is operative and that which is figurative.

When we consider, however, the strongly ingrained traditions in our schools, we wonder how successfully active methods can be sustained. Piaget notes, for example, that in the people's republics, teachers direct students but in ways that force them into activity rather than merely giving them lessons. Nevertheless, "the lesson is always found to conform to the natural tendencies of the teacher."[11] In the United States glossy textbooks, programmed systems in which the child can test in at one level, test out at another, film strips and tapes that can be neatly stored, science exhibits that fit on a table or two, these are the materials parents expect to find in schools, and that boards of education expect to buy. In the long run, however, it is not so much that the materials needed for active methods

are messier than those used in traditional teaching. It is rather that the presumed effects of active methods have not been well enough communicated to those who determine school policy. Do they really understand the consequence of teaching children something too quickly? Have they considered the importance to children's long term intellectual development of opportunities to invent their own solutions to problems they confront in an environment designed to stimulate their curiosity? Or is intellect not the business of the schools?

In traditional curriculum directed largely by the teacher, and acted out by children in oral or written responses to questions, parents and others have the mistaken sense that they know where children are. The illusion is also supported by achievement tests and such modern paraphernalia as behavioral objectives, and diagnostic and prescriptive teaching. Those who espouse active methods must, I think, find ways to communicate, if not where children are, at least where they have been in their thinking and where they are going.

That the social life of children assumes importance along with "active messing about" with materials also demands explanation. Piaget's theory suggests that the child's beliefs in his own way of seeing the world are more readily shaken by encounter with another child than by the intervention of an adult. As Piaget puts it, it is "cooperation (among the children themselves) that is most apt to encourage real exchange of thought and discussion, which is to say, all the forms of behavior capable of developing the critical attitude of mind, objectivity, and discursive reflection."[12]

Piaget once described an ideal classroom setting as one with two rooms. In the first, the teacher would instruct the children; in the second, the

children would work by themselves. I asked him about the ages of the children in such a group. He said ideally, every child should be associated with those who were a bit more advanced than he.

In the social life of the peer group, not only do "cooperation and a genuine intellectual exchange" foster the development of reason but they also promote a morality of mutual aid and a sense of justice. The teacher aids and abets these developments when she encourages children to consider for themselves the consequences of their actions rather than establishing herself as the arbiter of their behavior.

As in the case of active methods, I think there is great need to communicate to those who are responsible for school policy, what it is that children gain from discussion among themselves, or, as Piaget says, collaborating with one another.

With regard to both active methods and the social collaboration of the child, the goal, as Piaget sees it, is the construction of logico-mathematical structures, or operative learning. In such learning the child abstracts from the coordination of her actions, as when she derives from arranging and rearranging of a given set of objects a concept of number, or recognizes that such a set bears certain relationships to other sets and that all can be organized in a variety of related ways. "These operations . . . constitute the elements of the structures which he employs in his ongoing intellectual activity."[13]

Logico-mathematical, or operative thinking, enables the child as he grows to permeate and make his own, many disciplines. This is not to say that all knowledge or all learning is operative or logico-mathematical. Elkind, in his recent book, Child Development and Education, not only

underscores the usefulness of figurative learning but also suggests that much of the learning of young children is connotative. It represents the child's efforts to make sense out of her world by trying to relate concepts to verbal symbols.[14]

Clearly, however, what distinguishes a Piagetian from other curricula is its emphasis on the development of operative thought. How, one may ask, does the proponent of such a curriculum convey the meaning of that goal to the parents and to other members of the community? Eleanor Duckworth once talked about children having wonderful ideas and experimenting to verify them.[15] Those words are delightfully free of jargon but again, is school the place to be having wonderful ideas? While children are busy experimenting in ways that may well lead them to understand certain mathematical relationships or physical principles, what will be happening to their grasp of the times table? Will we face all over again the contention that the new math may be all right for the very bright, but average children don't get it, and none of them can do arithmetic? And what about their reading? Is that to wait while these wonderful ideas are tried out?

That questions such as these do arise can be attributed in part to a kind of cultural lag. We realize that our society has changed rapidly. To some extent we recognize that the problems it faces are embedded in larger problems that are world wide. The solutions to such problems demand thinking that is flexible, inventive and creative. At the same time, however, we tend to cling to notions of schooling that may no longer be appropriate. Such conservatism is not limited to those who make educational policy. It also extends to teachers.

Teachers, Piaget maintains, are the key to the successful application of his theories in education. Unfortunately, "old educational conceptions have made [them] into mere transmitters of elementary or only slightly more than elementary knowledge, without allowing them any opportunity for initiative and even less for research and discovery."[16] To remedy this, teachers need to learn the new child psychology, not by being told its results, but by direct and active collaboration in research projects and experiments. Secondary teachers need, in addition, to participate in research enabling them to grasp the epistemological bearing of the laws of development on their own particular subject matter. It may be noted, however, that Piaget regards the training of primary teachers as most important. "The younger the child the more difficult it is to teach him and the more pregnant that teaching is with future consequences."[17]

At the time Piaget made these pronouncements education in most countries was expanding. In the United States this is no longer the case. Thus in-service training assumes equal importance with, or greater importance than, pre-service preparation. There can be no doubt that many teachers are learning about Piagetian theory through institutes, workshops and extension courses, some sponsored by school systems, others taken voluntarily. To the extent that such training involves active participation on the part of the teachers and is geared to the problems they encounter in their teaching it surely has value. But we must also ask, is it sufficient?

Experiments such as Follow Through have demonstrated that teachers can modify their teaching strategies in line with a particular model, including those based at least in part on Piaget, provided that they are given considerable direct support in their classrooms. All of us who have grappled

with Piaget's ideas know that they are difficult to grasp. Is it reasonable to suppose that many teachers can implement a Piagetian classroom with less assistance than was provided in Follow Through?

An important element in the support the teacher receives seems to me to be the social climate in which she finds herself. In one climate, her principal or supervisor arranges the inservice sessions and assumes that she will benefit therefrom. In another climate, her interests in pursuing an inservice course are taken into consideration, she is involved in decision making related to it. The assumption is that she and her colleagues will exercise their intelligence both during the training and in its application in the classroom.

I recall no passage in Piaget's writing where he draws any parallels between the social climate necessary to promote the best thinking of young children, and that necessary to promote the best thinking of adults. But if young children are constrained to unquestioned acceptance and little reflection when the adult takes the heavy role of authority, there is little reason to believe that adults function more effectively when they too are constrained by authoritarian procedures. Unfortunately, the tradition in American schools weighs much more heavily in the direction of teacher conformity than in the direction of the free exercise of intelligence. Whether or not the psychological and epistemological training that Piaget regards as essential for teachers can be imparted in the present social climate of many schools and systems is open to serious question.

Equally open to question is the use of <u>experimental pedagogy</u> as envisioned by Piaget. Experimental pedagogy is defined as "a young discipline in full process of development whose purpose is to verify by

experiment all sorts of pedagogical hypotheses and the yield of educational methods."[18] Much of the educational research accompanying the curricular reform of the late '50s and early '60s and certainly research on Head Start and Follow Through models can be encompassed in that definition. With regard to the former, John Goodlad and his associates, observing in classrooms across the country, found little evidence of any lasting effect on classroom procedures.[19] As for the latter, we know that the outcome measures do reflect the program emphases.[20] Sceptics may well inquire whether these findings, in the context of all the time and money that has gone into such large scale educational research, justify its continuation.

Large scale research may be less appropriate to the present state of development of educational research or "experimental pedagogy" than is research involving single schools, or perhaps, clusters of schools. In such situations the variables that may influence the results can be more readily identified, and controlled.

The importance of the local setting is highlighted in a recent review of federal research relating to innovative programs. Teachers, the review found, change their teaching when the ideas seem relevant to their particular situation. They change most readily when they have supportive concrete experiences, such as observing teachers like themselves.

The importance of the local setting is also underscored in Seymour Sarason's analysis of schools and the ways they change, or do not change. In closing, I want to draw on some of his criteria for evaluating change to propose the kind of educational policy needed to support the implementation of Piaget's theory.

To begin with, it seems unlikely that a move toward Piaget-based schooling will be accomplished by administrative fiat of, say, the state department of education. The state department could, of course, facilitate such a move by making its accountability procedures consistent with an emphasis on development, rather than solely on the acquisition of specific academic skills.

In our school systems the principal of each individual school stands as a kind of gatekeeper. Whether or not a school remains encapsulated in tradition or moves in new directions depends very largely on his leadership. The questions that he needs to ask as he and his staff contemplate the possibilities of change can well be asked at other levels of the education hierarchy. They are, however, crucially important at the local school level.

The first question has to do with the appropriateness of the change to the complexity of the situation. I have suggested earlier some of the kinds of resistance that a move in a Piagetian direction may encounter. At the school level these will be more specific and possibly more recalcitrant. In any event the principal and his staff need to understand that there are no easy, simplistic answers.

A second question relates to the possible outcomes of change for different subgroups. Thus there will not only be new and different levels of responsibilities for teachers, but also new roles for paraprofessionals, school psychologists and even custodians. Furthermore, not only the children but their parents must be considered.

Related to the question of outcomes is the question of decision-making. Unless there is wide involvement in the process, dissension is almost inevitable outcome.

Finally there is the question of time. Americans tend to be impatient, to expect quick results. But the implementation of any new program takes time, just as children's development takes time. Effective educational policy will allow for the long term view and will not insist on evaluation in the first year. Indeed it will seek evaluation of a new sort, evaluation that is rooted in the teachers' growing abilities to follow the intricacies of children's thought.

Piaget's theory, I believe, has great potential for changing the character of children's education. Hundreds of dedicated teachers, all over the United States, have made an important beginning in demonstrating some of the possibilities. But the theory's fuller realization depends on policy changes that go far beyond the individual classroom.

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